



SEQUENCE LISTING

a /
10 > Kimble, Judith E
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5 <130> 960296.95386

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<210> 1

<211> 6659

<212> DNA

15 <213> Caenorhabditis elegans

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<221> CDS

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Ala Leu Ile Leu Leu Val Val Cys Leu Val Tyr Ala Leu Gln Ser Gly
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Ser Gly Thr Ile Ser Glu Phe Ser Ser Asp Val Leu Phe Ser Arg Ala
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Lys Tyr Ser Gly Val Pro Val His His Ser Arg Trp Arg Gln Asp Ala
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Gly Ile His Val Ile Asp Ser His His Ile Val Arg Arg Asp Ser Tyr
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	gtc aag tgt acc aca aag aaa cca cgt cga act caa tat tgt ttt gaa	5760
	Val Lys Cys Thr Thr Lys Lys Pro Arg Arg Thr Gln Tyr Cys Phe Glu	
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5	Arg Asn Cys Leu Pro Ser Thr Cys Gln Glu Leu Lys Ser Gln Asn Val	
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	Lys Ala Lys Asp Gly Asn Tyr Thr Ile Leu Leu Asp Gly Phe Thr Ile	
	1940 1945 1950	
10	gaa att tat tgt cat cga atg aat tca acc att cct aaa gct tat ttg	5904
	Glu Ile Tyr Cys His Arg Met Asn Ser Thr Ile Pro Lys Ala Tyr Leu	
	1955 1960 1965	
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	Asn Val Asn Pro Arg Thr Asn Phe Ala Glu Val Tyr Gly Lys Lys Leu	
15	1970 1975 1980	
	ata tac cct cat act tgc cca ttt aat ggt gat cgt aat gat tca tgc	6000
	Ile Tyr Pro His Thr Cys Pro Phe Asn Gly Asp Arg Asn Asp Ser Cys	
	1985 1990 1995 2000	
20	cat tgt tca gaa gac ggc gat gca agt gct gga ttg acg aga ttc aat	6048
	His Cys Ser Glu Asp Gly Asp Ala Ser Ala Gly Leu Thr Arg Phe Asn	
	2005 2010 2015	
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	Lys Val Arg Ile Asp Leu Leu Asn Arg Lys Phe His Leu Ala Asp Tyr	
	2020 2025 2030	
25	aca ttt gca aaa cga gaa tat ggt gtt cat gtg cca tat ggt act gcc	6144
	Thr Phe Ala Lys Arg Glu Tyr Gly Val His Val Pro Tyr Gly Thr Ala	
	2035 2040 2045	
	ggt gat tgc tac agt atg aaa gat tgt cca cag gga ata ttc tca att	6192
	Gly Asp Cys Tyr Ser Met Lys Asp Cys Pro Gln Gly Ile Phe Ser Ile	
30	2050 2055 2060	
	gat tta aaa tct gct ggt ctg aaa tta gtt gac gat ctg aat tgg gag	6240
	Asp Leu Lys Ser Ala Gly Leu Lys Leu Val Asp Asp Leu Asn Trp Glu	
	2065 2070 2075 2080	
	gat caa ggt cat cga aca tcc tct cga atc gat cgt ttt tat aac aat	6288
35	Asp Gln Gly His Arg Thr Ser Ser Arg Ile Asp Arg Phe Tyr Asn Asn	
	2085 2090 2095	
	gca aaa gtt att ggt cac tgt ggt ttt tgt gga aaa tgc tct cct	6336
	Ala Lys Val Ile Gly His Cys Gly Phe Cys Gly Lys Cys Ser Pro	
	2100 2105 2110	
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	Glú Arg Tyr Lys Gly Leu Ile Phe Glu Val Asn Thr Lys Leu Leu Asn	
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 <213> Caenorhabditis elegans

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 Ser Gly Thr Ile Ser Glu Phe Ser Ser Asp Val Leu Phe Ser Arg Ala
 25 35 40 45

 Lys Tyr Ser Gly Val Pro Val His His Ser Arg Trp Arg Gln Asp Ala
 50 55 60

 Gly Ile His Val Ile Asp Ser His His Ile Val Arg Arg Asp Ser Tyr
 65 70 75 80

 25 Gly Arg Arg Gly Lys Arg Asp Val Thr Ser Thr Asp Arg Arg Arg Arg
 85 90 95

 Leu Gln Gly Val Ala Arg Asp Cys Gly His Ala Cys His Leu Arg Leu
 100 105 110

 Arg Ser Asp Asp Ala Val Tyr Ile Val His Leu His Arg Trp Asn Gln
 30 115 120 125

 Ile Pro Asp Ser His Asn Lys Ser Val Pro His Phe Ser Asn Ser Asn
 130 135 140

 Phe Ala Pro Met Val Leu Tyr Leu Asp Ser Glu Glu Val Arg Gly
 145 150 155 160

 35 Gly Met Ser Arg Thr Asp Pro Asp Cys Ile Tyr Arg Ala His Val Lys
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 Gly Val His Gln His Ser Ile Val Asn Leu Cys Asp Ser Glu Asp Gly
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Leu Tyr Gly Met Leu Ala Leu Pro Ser Gly Ile His Thr Val Glu Pro
 195 200 205
 Ile Ile Ser Gly Asn Gly Thr Glu His Asp Gly Ala Ser Arg His Arg
 210 215 220
 5 Gln His Leu Val Arg Lys Phe Asp Pro Met His Phe Lys Ser Phe Asp
 225 230 235 240
 His Leu Asn Ser Thr Ser Val Asn Glu Thr Glu Thr Thr Val Ala Thr
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 Trp Gln Asp Gln Trp Glu Asp Val Ile Glu Arg Lys Ala Arg Ser Arg
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 Arg Ala Ala Asn Ser Trp Asp His Tyr Val Glu Val Leu Val Val Ala
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 Asp Thr Lys Met Tyr Glu Tyr His Gly Arg Ser Leu Glu Asp Tyr Val
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 15 Leu Thr Leu Phe Ser Thr Val Ala Ser Ile Tyr Arg His Gln Ser Leu
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 Arg Ala Ser Ile Asn Val Val Val Val Lys Leu Ile Val Leu Lys Thr
 325 330 335
 Glu Asn Ala Gly Pro Arg Ile Thr Gln Asn Ala Gln Gln Thr Leu Gln
 20 340 345 350
 Asp Phe Cys Arg Trp Gln Gln Tyr Tyr Asn Asp Pro Asp Asp Ser Ser
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 25 Arg Ser Gln Gly Lys Cys Asp Thr Leu Gly Leu Ala Glu Leu Gly Thr
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 Met Cys Asp Met Gln Lys Ser Cys Ala Ile Ile Glu Asp Asn Gly Leu
 405 410 415
 Ser Ala Ala Phe Thr Ile Ala His Glu Leu Gly His Val Phe Ser Ile
 30 420 425 430
 Pro His Asp Asp Glu Arg Lys Cys Ser Thr Tyr Met Pro Val Asn Lys
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 Asn Asn Phe His Ile Met Ala Pro Thr Leu Glu Tyr Asn Thr His Pro
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 35 Trp Ser Trp Ser Pro Cys Ser Ala Gly Met Leu Glu Arg Phe Leu Glu
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 485 490 495

Arg Tyr Tyr Glu Asp Val Phe Val Arg Asp Glu Pro Gly Lys Lys Tyr
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 5 Cys Pro Tyr Met Pro Thr Cys Arg Arg Leu Trp Cys Ala Thr Phe Tyr
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 595 600 605
 15 Gln Lys Gly Leu Arg Asp Cys Asp Ser Pro Lys Pro Arg Asn Gly Gly
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 Lys Tyr Cys Val Gly Gln Arg Glu Arg Tyr Arg Ser Cys Asn Thr Gln
 625 630 635 640
 Glu Cys Pro Trp Asp Thr Gln Pro Tyr Arg Glu Val Gln Cys Ser Glu
 20 645 650 655
 Phe Asn Asn Lys Asp Ile Gly Ile Gln Gly Val Ala Ser Thr Asn Thr
 660 665 670
 His Trp Val Pro Lys Tyr Ala Asn Val Ala Pro Asn Glu Arg Cys Lys
 675 680 685
 25 Leu Tyr Cys Arg Leu Ser Gly Ser Ala Ala Phe Tyr Leu Leu Arg Asp
 690 695 700
 Lys Val Val Asp Gly Thr Pro Cys Asp Arg Asn Gly Asp Asp Ile Cys
 705 710 715 720
 Val Ala Gly Ala Cys Met Pro Ala Gly Cys Asp His Gln Leu His Ser
 30 725 730 735
 Thr Leu Arg Arg Asp Lys Cys Gly Val Cys Gly Gly Asp Asp Ser Ser
 740 745 750
 Cys Lys Val Val Lys Gly Thr Phe Asn Glu Gln Gly Thr Phe Gly Tyr
 755 760 765
 35 Asn Glu Val Met Lys Ile Pro Ala Gly Ser Ala Asn Ile Asp Ile Arg
 770 775 780
 Gln Lys Gly Tyr Asn Asn Met Lys Glu Asp Asp Asn Tyr Leu Ser Leu
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	Leu Ala Arg Gln Gln Ile Ala Phe Gln Asp Thr Val Leu Glu Tyr Ser			
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	Ser Asp Ile Tyr Val His Val Leu Ser Val Gly Ser His Pro Pro Asp			
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	865	870	875	880
	Pro Ile Ser Ser Ala Leu Tyr Leu Trp Arg Val Thr Asp Thr Trp Thr			
	885	890	895	
	Glu Cys Asp Arg Ala Cys Arg Gly Gln Gln Ser Gln Lys Leu Met Cys			
	900	905	910	
15	Leu Asp Met Ser Thr His Arg Gln Ser His Asp Arg Asn Cys Gln Asn			
	915	920	925	
	Val Leu Lys Pro Lys Gln Ala Thr Arg Met Cys Asn Ile Asp Cys Ser			
	930	935	940	
20	Thr Arg Trp Ile Thr Glu Asp Val Ser Ser Cys Ser Ala Lys Cys Gly			
	945	950	955	960
	Ser Gly Gln Lys Arg Gln Arg Val Ser Cys Val Lys Met Glu Gly Asp			
	965	970	975	
	Arg Gln Thr Pro Ala Ser Glu His Leu Cys Asp Arg Asn Ser Lys Pro			
	980	985	990	
25	Ser Asp Ile Ala Ser Cys Tyr Ile Asp Cys Ser Gly Arg Lys Trp Asn			
	995	1000	1005	
	Tyr Gly Glu Trp Thr Ser Cys Ser Glu Thr Cys Gly Ser Asn Gly Lys			
	1010	1015	1020	
30	Met His Arg Lys Ser Tyr Cys Val Asp Asp Ser Asn Arg Arg Val Asp			
	1025	1030	1035	1040
	Glu Ser Leu Cys Gly Arg Glu Gln Lys Glu Ala Thr Glu Arg Glu Cys			
	1045	1050	1055	
	Asn Arg Ile Pro Cys Pro Arg Trp Val Tyr Gly His Trp Ser Glu Cys			
	1060	1065	1070	
35	Ser Arg Ser Cys Asp Gly Gly Val Lys Met Arg His Ala Gln Cys Leu			
	1075	1080	1085	
	Asp Ala Ala Asp Arg Glu Thr His Thr Ser Arg Cys Gly Pro Ala Gln			
	1090	1095	1100	

Thr Gln Glu His Cys Asn Glu His Ala Cys Thr Trp Trp Gln Phe Gly
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Val Trp Ser Asp Cys Ser Ala Lys Cys Gly Asp Gly Val Gln Tyr Arg
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5 Asp Ala Asn Cys Thr Asp Arg His Arg Ser Val Leu Pro Glu His Arg
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Cys Pro Lys Tyr Lys Leu Gly Glu Trp Ser Gln Cys Ser Val Ser Cys
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Glu Asp Gly Trp Ser Ser Arg Arg Val Ser Cys Val Ser Gly Asn Gly
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Thr Glu Val Asp Met Ser Leu Cys Gly Thr Ala Ser Asp Arg Pro Ala
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15 Ser His Gln Thr Cys Asn Leu Gly Thr Cys Pro Phe Trp Arg Asn Thr
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Asp Trp Ser Ala Cys Ser Val Ser Cys Gly Ile Gly His Arg Glu Arg
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Thr Thr Glu Cys Ile Tyr Arg Glu Gln Ser Val Asp Ala Ser Phe Cys
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Gly Asp Thr Lys Met Pro Glu Thr Ser Gln Thr Cys His Leu Leu Pro
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Cys Thr Ser Trp Lys Pro Ser His Trp Ser Pro Cys Ser Val Thr Cys
1285 1290 1295

25 Gly Ser Gly Ile Gln Thr Arg Ser Val Ser Cys Thr Arg Gly Ser Glu
1300 1305 1310

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1315 1320 1325

Leu Lys Lys Thr Cys Glu Lys Asp Thr Cys Asp Gly Pro Arg Val Leu
30 1330 1335 1340

Gln Lys Leu Gln Ala Asp Val Pro Pro Ile Arg Trp Ala Thr Gly Pro
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Trp Thr Ala Cys Ser Ala Thr Cys Gly Asn Gly Thr Gln Arg Arg Leu
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35 Leu Lys Cys Arg Asp His Val Arg Asp Leu Pro Asp Glu Tyr Cys Asn
1380 1385 1390

His Leu Asp Lys Glu Val Ser Thr Arg Asn Cys Arg Leu Arg Asp Cys
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Ser Tyr Trp Lys Met Ala Glu Trp Glu Glu Cys Pro Ala Thr Cys Gly
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Thr His Val Gln Gln Ser Arg Asn Val Thr Cys Val Ser Ala Glu Asp
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5 Gly Gly Arg Thr Ile Leu Lys Asp Val Asp Cys Asp Val Gln Lys Arg
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Pro Thr Ser Ala Arg Asn Cys Arg Leu Glu Pro Cys Pro Lys Gly Glu
1460 1465 1470

Glu His Ile Gly Ser Trp Ile Ile Gly Asp Trp Ser Lys Cys Ser Ala
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Ser Cys Gly Gly Trp Arg Arg Ser Val Ser Cys Thr Ser Ser
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Ser Cys Asp Glu Thr Arg Lys Pro Lys Met Phe Asp Lys Cys Asn Glu
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15 Glu Leu Cys Pro Pro Leu Thr Asn Asn Ser Trp Gln Ile Ser Pro Trp
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Thr His Cys Ser Val Ser Cys Gly Gly Val Gln Arg Arg Lys Ile
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Trp Cys Glu Asp Val Leu Ser Gly Arg Lys Gln Asp Asp Ile Glu Cys
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Ser Glu Ile Lys Pro Arg Glu Gln Arg Asp Cys Glu Met Pro Pro Cys
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Arg Ser His Tyr His Asn Lys Thr Ser Ser Ala Ser Met Thr Ser Leu
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Pro Ile Leu Pro Pro Val Val Ser Trp Gln Thr Ser Ala Trp Ser Ala
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Cys Ser Ala Lys Cys Gly Arg Gly Thr Lys Arg Arg Val Val Glu Cys
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35 Arg Trp Lys Thr Thr Trp Ser Ser Cys Ser Val Thr Cys Gly Arg
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Gly Ile Arg Arg Arg Glu Val Gln Cys Tyr Arg Gly Arg Lys Asn Leu
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 1780 1785 1790
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 Pro Ala Val Pro Lys Glu Lys Cys Glu Leu Phe Pro Lys Pro Asn Glu
 1845 1850 1855
 Ser Gln Thr Cys Glu Leu Asn Pro Cys Asp Ser Glu Phe Lys Trp Ser
 20 1860 1865 1870
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 1875 1880 1885
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 1890 1895 1900
 25 Val Lys Cys Thr Thr Lys Lys Pro Arg Arg Thr Gln Tyr Cys Phe Glu
 1905 1910 1915 1920
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 1925 1930 1935
 Lys Ala Lys Asp Gly Asn Tyr Thr Ile Leu Leu Asp Gly Phe Thr Ile
 30 1940 1945 1950
 Glu Ile Tyr Cys His Arg Met Asn Ser Thr Ile Pro Lys Ala Tyr Leu
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 1970 1975 1980
 35 Ile Tyr Pro His Thr Cys Pro Phe Asn Gly Asp Arg Asn Asp Ser Cys
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 2005 2010 2015

Lys Val Arg Ile Asp Leu Leu Asn Arg Lys Phe His Leu Ala Asp Tyr
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Phe Ser Gly Asp Met Asp
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